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ABSTRACT

The study of the role of students' interest in their learning has seen a resurgence in the past 20 years. This chapter examines the ways in which adolescents' interests develop, differ from those of younger children, and contribute to their developing sense of self. The chapter helps to explain why many adolescents lack academic interests and how their interests can be related to antisocial behavior. The chapter also describes how vocational interests may play critical roles in their lives, given that individuals are required to make career and lifestyle decisions during adolescence. Following introductory remarks, the chapter describes situational interest as a state involving focused attention, persistence, and increased cognitive functioning, and differentiates it from individual interest, a relatively enduring predisposition to engage in particular activities. The development of individual interest and its relationship to achievement, self concept development, and identity formation are described. It is argued that understanding adolescents' individual and occupational interests will inform the study of identity formation and the development of a sense of self. The chapter presents models of vocational interest development. The contribution of patterns of individual interests and occupational interests to adolescents' status as at-risk for school dropout is discussed. It is asserted that educators need to understand the extent to which interest contributes to adolescents' developing sense of self because it impacts on their responsiveness to school experiences. The chapter concludes by noting that student interest is more likely to persist if individuals attach the new experience to themselves, thereby making it an individual interest. (Contains 115 references.) (KB)

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CHAPTER 9

# INTEREST AND ADOLESCENCE

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Motivation has been defined in various ways by psychologists, educators, and laypersons. Recently, Wegge (2001) extended Kanfer's (1994) definition of motivation as the psychological mechanism determining the direction, intensity, and persistence of individuals' activity by suggesting that individuals' motivation also explains predecisional processes involved in goal selection, and the persistence and intensity of pursuing a selected goal. He further argued that while cognitive processes and representations that are the focus of various motivational theories (e.g., expectancy-value theory, self-efficacy beliefs, and goal theories) undoubtedly contribute to the regulation of human behavior, motivational phenomena cannot be reduced solely to the impact of these cognitive factors. Rather, emotional processes and physiological factors that contribute to the psychological state of the organism and to the energizing of behavior need to be included in the theories of motivation (Hidi, 1990; Krapp, 1999; Sorrentino, 1996). Interest is one motivational concept that incorporates affective and cognitive factors to explain how and why individuals choose to engage in certain activities (Hidi & Berndorff, 1998; Krapp, 2000). Interest may also have strong and yet not fully explained associations with the selection and pursuit of goals (Hidi & Harackiewicz, 2000; Krapp, 2002; Sansone &



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Harackiewicz, 1996). In this chapter we focus on adolescents and consider the role of interest in learning.

As early as in 1806, German philosopher Herbart concluded that the cultivation of diversified interest was a prerequisite for learning and should be a primary goal of education. Dewey (1913) extended this view by pointing out that interest-based learning differed from learning that lacked interest. He further argued that interest was essential to maintain self-initiated, content-related activities that result in pleasure, satisfaction, and learning. In the last two decades with a renaissance of interest research, educators and psychologists specifically recognized that interest is central in determining how we select and persist in certain activities, such as processing certain types of information in preference to others (Hidi, 1990). As the literature indicates, interest facilitates learning (Krapp, 2000; Renninger, 2000; Renninger & Hidi, 2002). Schiefele (2001) and Schiefele and Krapp (1996) demonstrated that this facilitation occurs especially with respect to qualitative measures such as deeper level learning.

Unfortunately, research over this time period also indicated that as children get older, their interest and attitudes toward academic activities may decline (Anderman & Maehr, 1994; Haladyna & Thomas, 1979; Harter, 1981; Hidi & Harackiewicz, 2000; Krapp, 2002; Wigfield & Eccles, 1992). Such deterioration is especially characteristic of many adolescents' motivation, creating special difficulties for them. As Rudolph, Lambert, Clark, and Kurlakowsky (2001) argued, understanding adolescents' adjustment difficulties in this critical stage of individual development may be essential for improving long-term educational outcomes. To understand the special problems created by adolescents' declining interest in many academic subjects such as mathematics and physics (Eccles, Wigfield, & Schiefele, 1998; Epstein & McPartland, 1976; Hoffmann & Haussler, 1998; Wigfield & Eccles, 1992), one must recognize that when children reach adolescence they are subject to a wide and sometimes conflicting array of social expectations. Within the framework of their school subjects, they are expected to take charge of their learning. Increasingly, schools are expecting students to become independent learners and to develop self-regulation strategies, both of which require agency and purpose in learning (Walker, 2001; Zimmerman, 1989). Simultaneously, specific organizational and management structures that regulate students' lives in middle school often serve to diminish student autonomy rather than promoting learner self-regulation and responsibility. This has been demonstrated in the work of Eccles and colleagues (e.g., Eccles & Midgley, 1989; Maehr & Midgley, 1996). Therefore, at a time when many students' interest in academic areas is declining, they are being expected to show self-regulation and purpose in their learning while at the same time they need to conform to relatively restrictive and controlling school organizational structures.

As our subsequent discussion demonstrates, interest has been conceptualized in various ways and consideration of these differences offers new insights into the character of adolescents' responses to their educational experiences. The definition of interest as a psychological state and/or as an individual disposition underlies these various conceptualizations (Krapp, Hidi, & Renninger, 1992; Schiefele, 2001; Todt & Schreiber, 1998). Focused attention, persistence, increased cognitive functioning, and affective involvement characterize the psychological state of interest (Hidi, 2000). Although increased effort is usually required to maintain focused attention and cognitive functioning, when interest is high, the activities feel relatively effortless. In the educational literature, two types of interest, situational and individual, have been associated most frequently with experiencing the psychological state of interest.[1]

## SITUATIONAL INTEREST

Particular conditions and/or objects in the environment generate the psychological state referred to as situational interest. This psychological state involves focused attention, persistence, and increased cognitive functioning. Situational interest appears to be associated with combinations of emotions that are not necessarily all positive (Hidi & Harackiewicz, 2000; Renninger & Hidi, 2002). As early as 1987, Iran-Nejad demonstrated that interest and liking are not identical concepts. He noted that some objects can be interesting even though they may elicit negative emotions (for example, animals such as snakes). Hidi and Harackiewicz (2000) used the example of medical students dissecting cadavers to demonstrate that interesting experiences can have negative as well as positive affective tones.

The ways in which tasks are organized and presented may influence students' situational interest (Ainley, Hidi, & Berndorff, in press), and it has also been pointed out that situational interest is not necessarily associated with high levels of content knowledge (Renninger, 2000). The attention and affective reactions associated with this type of interest are often transitory (Hidi, 1990; Murphy & Alexander, 2000), and this has led to the suggestion that there are two potential phases of situational interest, one in which interest is triggered and a subsequent phase in which the triggered interest is maintained (Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000; Hidi & Baird, 1986; Mitchell, 1993). Further information on situational interest is provided by two recent reviews of the topic by Hidi and Berndorff (1998) and by Schraw and Lehman (in press).

## INDIVIDUAL INTEREST

When through repeated engagements, individuals experience positive affects, increase their related knowledge, and come to value highly the object of their activity, they develop an individual interest (Alexander, Jetton, & Kulikowich, 1995; Renninger, 2000). In this sense, individual interest is a relatively enduring predisposition to attend to certain objects and events and to engage in certain activities (Krapp et al., 1992; Renninger, 1992, 2000; Schiefele, 1998). As the literature indicates, individual interest is associated with positive affect and persistence and tends to positively influence learning. Renninger (2000) presented a detailed description of various aspects of individual interest. She specifically reviewed evidence that individual interest develops in relation to activity, it holds attention, and it facilitates learning.

Ainley and colleagues (in press) pointed out that within the broader domain of schooling, students, rather than having just one individual interest, may have several individual interests, some closely related to the goals of classroom learning and others antithetical to such learning. Ainley and colleagues further argued that there are different levels of generality implicit in the various conceptualizations of individual interest. For example, individual interests can be defined in terms of special content of subject areas (literature, history, etc.) or activities in specific areas (music, physical education, etc.). Individual interest may also refer to a more general tendency of individuals to seek out more new information or to have a desire to find out about new ideas, objects, and events. Ainley (1998) characterized this general interest in learning as individuals' characteristic way of approaching novel and/or puzzling phenomena with a desire to understand events and phenomena and has shown that it is associated with a range of positive attitudes to schooling. A similar argument has been developed by Pintrich (2000) in relation to his conceptualization of achievement goal orientations. At the general level, students have broad life goals; at the most specific level, they have particular task goals. In between are achievement goal orientations, more general than task goals and less general than life goals.

Described in this way, it is clear that individual interest is one of a number of motivational concepts adding insight into student learning (see Murphy & Alexander, 2000). Achievement motivation and intrinsic motivation are two of the terms closely associated with discussion of interest as it has been investigated in relation to student learning. How interest and intrinsic motivation are related has recently been discussed by Hidi (2000) and by Hidi and Harackiewicz (2000). They have noted that intrinsic motivation has been typically defined as motivation to engage in activities for their own sake and independently of external influences. As interest has

also been seen to be associated with similar characteristics, researchers have either considered intrinsic motivation and interest to be synonymous terms (Tobias, 1994) or have viewed interest as an implicit aspect of intrinsic motivation (Deci, 1992, 1998). Thus, it is not surprising that in many motivational studies, individuals' self-reported levels of interest served as a basic measure of intrinsic motivation.

However, using the two terms interchangeably overlooks important distinctions between these concepts. As others have pointed out (e.g., Bergin, 1999; Guthrie & Wigfield, 1999) intrinsic motivation is a more general concept than interest. More specifically, interest *is* only one of several motives that may result in intrinsically motivated behavior. Hidi (2000) proposed that needs and desires are some other forms of motivation that may result in intrinsically motivated behavior. In addition, the origins of interest and intrinsic motivation have been conceptualized differently. Whereas the origins of intrinsic motivation tend to be explained by individuals' need to achieve competence, to overcome challenges, and to exercise control of their environment (Deci, 1975; Hunt, 1965; Lepper & Henderlong, 2000), the origins of interest are not seen as the outcome of needs. Rather, interest results from specific interactions between a person and an object or aspect of his/her environment. Person–object interaction and object specificity are basic to the conceptualization of interest (Hidi & Baird, 1986; Krapp, 2000; Schiefele, Hausser, & Schneider, 1979). According to this view, interest is always in reference to a specific object or class of objects, which helps explain why individuals prefer to engage in certain activities over others (Schiefele, 1998).

## THE RELATIONSHIP BETWEEN SITUATIONAL AND INDIVIDUAL INTEREST

As Renninger and Hidi (2002) noted, almost all students have individual interests and can also expect to find themselves having experiences that trigger situational interest. Both types of interest may operate simultaneously (Ainley et al., in press; Haussler & Hoffmann, 1998). In addition, situational interest once maintained, can contribute to the development of well-developed individual interest (Bergin, 1999; Follings-Albers & Hartinger, 1998; Hidi, 1990; Hidi & Anderson, 1992; Hidi & Harackiewicz, 2000; Hoffman & Haussler, 1998). More specifically, when situational interest continues over extended periods of time, it can lead to increased knowledge and value as well as to positive affect (Hidi, 2000).

For educators the potential of situational interest to contribute to the development of individual interest is critical. It suggests that through environmental influences, teachers and parents can contribute to situational

interest that in turn may facilitate the development of school-related individual interests in students who are lacking such interest (Hidi & Berndorff, 1998; Mitchell, 1993; Schraw & Dennison, 1994).

## INTEREST DEVELOPMENT

It has been argued that at the early stages of intellectual development, infants have only undifferentiated interest and this is manifested in their search for structure in the environment (Piaget, 1967; Schiefele, 2001; Travers, 1978). As children's experience of the environment becomes wider, interest becomes organized into more differentiated structures that vary among individuals. For example, some children may develop a strong interest in numbers, music, sports, and so on. Other children's interest can be focused on people or on animals.

Studies of young children indicate that they have identifiable individual interests (Krapp & Fink, 1992; Renninger, 1992). Schiefele (2001) noted that between 3 and 8 years of age, children's gender-specific interests develop. Based on Kohlberg's (1967) theory, Schiefele links the development of gender-specific interests to children's acquisition of gender identity. That is, children strive to be consistent with their self-concept and activities/objects that fit are likely to be evaluated positively. Consequently, boys become mainly interested in male toys such as cars and machines, and girls' interests focus on female toys such as dolls and their houses. Renninger and Wozniak's (1985) seminal research demonstrated that children as young as 3 years of age have relatively stable individual interests that are gender specific and that these interests influence their attention, memory, and activities.

Although gender-specific interests have been widely documented (see Gardner, 1998, for a review), there is no clear agreement over exactly how those interests develop. Maccoby (2000) cites a range of theories that have been offered to explain the development of gender identity, including socialization, cognitive, ethological, and psychobiological perspectives. What is clear from her analysis is that children do develop strong gender identity and that they generally "socialize themselves to conform to what they know to be stereotypical for children of their own sex" (p. 400). Further research into the way in which biological, cognitive, and social experience factors together influence the development of gender identity and associated gender-specific interests will also contribute to understanding the processes that underlie the development of individual interests that are compatible with and support adolescents' academic achievement.

According to Schiefele (2001), the next stage of interest development covers the ages between 9 and 13. Individual interests between these years

reflect a combination of social affiliation and cognitive competence issues. As was true earlier in childhood, at puberty adolescents manifest interests that accord with their gender-role stereotypes (Bergin, 1999; Fivush, 1998; Hannover & Kessels, 2001; Krapp, 2002). The content of the gender-role stereotypes may have different foci to the gender-role stereotypes of childhood, but they are still an important influence on individual interests. Adolescents reevaluate existing interests and generally align themselves with those that accord with the dominant gender-role stereotypes. Krapp (2000) argued that boys and girls develop different academic and recreational interests during adolescence. He noted that Schiefele and Stocker (1990) found that, at the upper secondary level, boys tend to read about science and technology and girls more often read texts on history, society, and travel, suggesting that gender is a significant factor in interest development. Krapp further proposed that these results are in accordance with many other studies of subject-matter interests in secondary schools indicating that the developmental patterns of individual interest in the areas of mathematics, physics, and chemistry are gender specific, with girls' average interest in these areas declining strongly during this stage (Gardner, 1998; Hoffman & Haussler, 1998). It is noteworthy that there is a complex relationship between the actual content of school subjects such as physics and girls' interest in physics. It has been shown that the interest of girls in physics can be improved by designing physics topics in light of known differences in gender-specific interests. For example, Hoffmann and Haussler (1998) reported that explaining the functioning of pumps in terms of the human body (pumping blood during surgery) rather than pumping gas from the ground significantly increased girls' interest in the content of the physics lesson and improved their subsequent learning.

The decline of academic interests during adolescence has been interpreted by many as a proof of problems with schools (Krapp, 1999; Schiefele, 2001; Travers, 1978). Whereas schools, curricula, and teachers undoubtedly influence school-related motivation (Eccles, Barber, Updegraff, & O'Brien, 1998), it may be inappropriate to place the entire blame for academically unmotivated children on various aspects of the school systems. Hidi (2000, 2001) argued that whereas researchers have suggested that societal and cultural influences and/or pressures result in the reduction of academic motivation, there are other factors inherent in age-related changes that contribute to these decreases. She contrasted young children's intrinsic motivation and boundless energy to explore, their joy in learning new skills on their own, and their continuing efforts to satisfy their own curiosity with the perceptions of some older children who view learning as more of a chore than a challenging, exciting, and rewarding activity (Hidi & Harackiewicz, 2000; Lepper & Cordova, 1992).

As children advance in school, the content of their courses become more complex and more difficult to learn. At the same time, some children may be confronted with the fact that they do not learn as quickly as some of their peers. More information has to be processed, reviewed, and retained, and strategies must be developed to deal with tasks that are not necessarily interesting. Two examples of complex tasks that require hard work and may not be intrinsically motivating are acquisition of revision skills in writing (Zimmerman & Kitsantas, 1999) and learning to speak a second language. Hidi (2000) noted that, just as Zimmerman and Kitsantas (1999) argued, acquisition of these skills are long-term processes that require high levels of personal discipline, many hours of practice, and self-regulation. Learning a second language and acquiring revision skills are only two examples of the complex academic tasks adolescents encounter in schools. However, they illustrate the distance children have to travel from their joyful discovery of the world to the focused attention, serious effort, and long-term self-disciplined commitment complex academic tasks require. In other words, whereas strong interest is generally associated with effortless, focused attention, many academic tasks at this level require considerable effort to maintain the focused attention that is required for successful task performance.

Hidi (2000) further proposed changes in social relationships may also contribute to the undermining of adolescent's academic motivation. Whereas younger children's explorations, play activities, and acquiring new skills tend to subsume social relations, with increasing age, there is the potential for academic and social activities to diverge. For some adolescents, social activities become the focus of their interests, preferences, goals, and choices and so compete with academic activities. For other adolescents, social and academic goals are complementary (Urdan & Maehr, 1995). When students' academic interests decline as a direct response to increasing social interests, this becomes a serious problem for educators (Eccles & Midgley, 1990; Follings-Albers & Hartinger, 1998; Sansone & Smith, 2000; Shernoff, Schneider, & Csikszentmihalyi, 1999; Wigfield & Eccles, 1992).

## INDIVIDUAL INTEREST AND ACHIEVEMENT

Renninger and Hidi (2002) argued that the relationship between individual interests and achievement may differ depending upon the type and strength of interest a student holds. More specifically, they proposed that individuals are the most successful with subject content for which they have a well-developed interest. Using their case study of an adolescent, Sam, they illustrated how this might occur. Sam's individual interests included

reading, soccer, and friends. In situations that involve these interests, Sam demonstrated a sustained ability to work at and be challenged by the activities. He did not appear to need explicit target goals in these academic endeavors. Rather, Sam appeared to engage in a fluid process of generating and revising answers to the challenges he set for himself. Renninger and Hidi concluded that this process is like a flow of activity (Csikszentmihalyi, 1990). It resembles the behavior of expert problem solvers who can, when asked, specify their actions, but who would not consider breaking down their task into a sequence of limited goals in case the process hampers their problem solving (Chi, Glaser, & Farr, 1998). The authors noted that the effort that Sam put into activities related to his well-developed individual interests, such as reading, did not cause him to feel stressed. Rather, in spite of considerable time he invested into the tasks, he reported that these activities seemed to feel effortless.

In contrast, Sam's participation in a science project on the Indonesian Box Turtle that was unrelated to his well-developed interests was more tangible and was highly dependent on support from others (teachers, peers, and parents). Eventually the project triggered and maintained Sam's situational interest, and he developed a connection with the content that resulted in his committing considerable effort to the process. However, without outside support, Sam did not appear to generate questions he wanted to answer and was not thinking about how to fuel the potential for improved performance, although he manifested such activities in the case of subject content for which he had well-developed interest.

In addition to the above differences, Renninger and Hidi (2002) noted that Sam seemed to have different emotions depending on the strength of his interests. Whereas he experienced extremes of emotions such as elation and frustration when performing activities that were related to his well-developed interest, he did not appear to experience a similar range of emotions while working on the science project.

How students perceive their own learning experiences, and how others respond to their successes and failures, are likely to contribute to shaping subsequent learning experiences. If students' positive feelings and willingness to work with different content areas are supported, this may help develop a variety of school-related (academic) interests. Such interests may facilitate students' ability to work with their courses and complete their academic tasks. For example, during the science project, as Sam's situational interest increased, he began taking responsibility for completing his assignment more independently. In the early stages of the project, Sam not only required support to focus on his work and to suggest questions to answer, but he also had relied on goals set by the teacher to conduct a set of experiments. With the help of goals laid out for him in the rubric for the project and his situational interest maintained, Sam focused on completing the

project and achieving a high evaluation and a good grade. The description of Sam's behavior when working on tasks unrelated to his well-developed interests suggests that experts and peers in Sam's life have a role in the emergence and maintenance of his developing interests.

Renninger and Hidi (2002) concluded that although the process of interest development may be dependent on students' cognitive development, as suggested by Eccles and colleagues (1998), it is also the product of their culture, a culture that supports, empowers, and constrains the development of some interests as opposed to others (Anderman & Maehr, 1994; Eccles & Midgley, 1990). By middle school, differences in individual interests begin to emerge (Krapp, 2000; Todt & Schrieber, 1998). Students begin to have a sense that in comparison to other students they are capable in some areas and not in others and that they are more interested in some educational topics and activities than in others. Based on Sam's case, it appears that the role of schools and school culture in shaping the emergence and maintenance of interest needs to be acknowledged and further investigated.

## DEVELOPMENT OF THE SENSE OF SELF IN ADOLESCENCE

In terms of understanding the broader role of these interest processes within the framework of adolescent development, it is important to consider the role of interest in the development of the sense of self and specifically to focus attention on the development of competencies. As Steinberg and Morris (2001) pointed out, much of the contemporary research on adolescent development appears to start with the assumption that "healthy adolescent development is about avoidance of problems rather than the growth of competencies" (p. 83).

Contemporary perspectives on adolescent development typically refer to this period as a time for establishment of a sense of identity (Erikson, 1968), a time when young people are "preoccupied with the challenge of self-definition" (Harter, 1990). The social and cultural expectations within Western industrialized societies are that young persons arrive at the end of adolescence having a clear sense of who they are and what they want to be as adult members of society. The most common form of these expectations can be expressed by questions such as, "What are you going to do when you finish your studies?" or "What are you going to do when you leave school?" Other expectations can be probed through questioning adolescents' lifestyle plans that may reflect whether they have achieved an identity (or self-definition). The underlying assumptions are that adolescents are formulating some clear and consistent future plans and working toward achieving a sense of self. Although the time-frame for many of these issues to be trans-

lated into decision and commitment appears to have been extended beyond the teenage years (Steinberg & Morris, 2001), these decisions and commitments are still the important developmental tasks of adolescence.

Identity and self-concept represent two well-known models for exploring the development of the sense of self in adolescence. The identity concept developed by Erikson (1959, 1968) has been taken up and elaborated by psychosocial identity theorists (e.g., Adams & Marshall, 1996; Kroger, 2000a; Marcia, 1966). Self-concept perspectives have been elaborated both by Harter (1986, 1990) and Marsh (1989). Typically, theoretical frameworks for understanding identity formation and self-definition focus on functional aspects of self-development. The emphasis is on crisis and commitment in psychosocial identity theory (Erikson, 1968; Marcia, 1966) and on differentiation (Marsh, 1989) or on both differentiation and integration (Harter, 1990) in self-concept theory. However, to provide a more complete understanding of this developmental stage, a study of competencies within the contents of the self-system is necessary alongside the analysis of the changing structure of the self. It is with respect to the study of the contents of the developing self that investigations of individual interests have much to offer.

In a review of the status of research on identity formation, Blasi (1988) clearly articulated how both concrete contents and individuals' attitudes were essential aspects of the identity construct popularized by Erikson (1959, 1968).

> A full understanding of identity requires the study of two components: the set of concrete contents (perhaps a specific focus on religion, or on one's career, or on political ideology) and the set of attitudes (of choice and commitment, of integration, individuation, etc.) by which the concrete contents become the substance of one's subjective identity ... The attitudinal component, namely the experience of oneself as an individual whole, is what makes a certain psychological phenomenon to be identity ... the content component, instead, accounts for the fact that different people, all having arrived at a subjective sense of identity, dramatically differ from each other on the basis of their identities. (p. 234)

Blasi's (1988) main proposition is that the essence of identity is intentionality, an agentic stance implicit in the sense of self. Within this framework of understanding the self, individual interests are important contents. Interests by their very nature have an intentional or agentic character once they contribute to self-determination (e.g., deCharms, 1968; Deci & Ryan, 1985). To pursue an interest or to act on an interest is to have some measure of intention and control over the direction of behavior.

## Individual Interests and the Contents of Self-Concept Studies

A number of theoretical frameworks have informed the construction of measures to assess identity and self-concept. The most commonly used measures within the psychosocial perspective on identity development have been based on Marcia's (1966) identity status interview (Kroger, 2000b; Marcia, Waterman, Matteson, Archer, & Orlofsky, 1993). Marcia defined the contents as those domains that Erikson proposed were central to identity development in Western societies, and he included "occupation, religion, and politics." Identity status was determined by the occurrence of crisis (self-questioning, revaluation) and commitment (decision) processes within these three key life areas. Hopkins (1982) pointed out that there was an "outer space" or masculine bias in these designated identity contents and added a number of "inner space" or more feminine issues. Issues concerning aspects of interpersonal relationships and interpersonal lifestyle decisions, "premarital sex, life plan, and sex roles," were added to the more traditional occupation, religion, and politics questions. These interview measures were first used with college-age students but with their wider acceptance are increasingly being used with younger adolescents as researchers investigate the precursors of later identity status (e.g., Flum, 1994).

Another strong line of measurement of the sense of self can be seen in the development of self-concept measures. These measures specify a set of domains and measure self-concept in terms of individual variability across those domains. For example, Harter (1990) measured the major components of self-concept as scholastic competence, athletic competence, social acceptance, behavioral conduct, appearance, and global self-worth. Marsh's (1989) widely used Self Description Questionnaire (SDQ-II: secondary school level; SDQ-III: tertiary level) measures adolescent self-concept in terms of a number of specific domains: physical abilities, physical appearance, opposite-sex relationships, same-sex relationships, parent relationships, honesty/trustworthiness, spiritual values/religion (SDQ-III only), emotional stability, school (academic), verbal, math, problem solving (SDQ-III only), and general esteem. A number of these domains of the self are defined by Marsh in terms of "students' perceptions of their skills (abilities) and interest in ..." (p. 430). As is the case for the SDQ, interests are often explicitly stated to be a component of the specific contents of domains of self-concept. However, the broad domains used in these measures of self-concept do not do justice to the variety and complexity of individual interests whereby adolescents define themselves.

The importance of capturing some of the complexity and variability inherent in the ways individual interests define adolescents' self or identity

(Renninger & Hidi, 2002) can be appreciated from different perspectives on adolescents' development. The relationship between interests, self, and learning can be identified at the individual student level. Hannover and Kessels (2001) suggested that poor performances of German students in the international studies of mathematics and science achievement may be linked to students not liking these subjects. Looking deeper into what this means, they proposed that the students' images of the hard sciences were incompatible with their self-images or self-concept, and this incompatibility may have resulted in negative feelings and underachievement in the so-called hard sciences. Self-image is based on self perceptions and, according to Hannover and Kessels, during childhood and adolescence, self-image undergoes critical changes when different goals become salient. These changes can be due to biological, cognitive, and/or social conditions. Introduction of a new subject such as physics or a branch of mathematics places students in a psychological situation where they must evaluate the new topic in relation to themselves, their perception of their own abilities and interests, and compatibility with their social goals and commitments. Hannover and Kessels found that students were more likely to favor school subjects when there was a similarity between students' perceptions of the subject and their actual or desired self-concept. The developmental process implied in Hannover and Kessels's research is similar to the differentiation processes that Marsh (1989) proposed and to the differentiation and integration processes described by Harter (1990).

Another perspective on the complexity and variability inherent in the ways individual interests define adolescents' self or identity can be seen when attention is drawn to the changes in the social and cultural context, which form the backdrop for identity formation and self-definition. As many historical treatments of adolescent development have pointed out (e.g., Baumeister & Muraven, 1996), across the 20th century there were marked changes in the "locus and burden" of self-definition. Adolescents in the early part of the 20th century often had their adult identity determined for them by family and community. The family farm, the family business, or the family trade was passed on from one generation to the next. With the changing structure of social organization across the 20th century, more and more options for occupational, lifestyle, and personal identities have become available for adolescents. The range of contents has broadened dramatically and it is becoming far less common for succeeding generations within families to be continuing the specific life course set by parents and grandparents. Lifestyle choices are more likely to be made by young adults themselves rather than by their family or community. Hence, an understanding of the variety and patterning of the contents of identity and the sense of self requires more intensive analysis of the contents of identity, in particular individual goals, interests, and attitudes. One way this

can be pursued is through examination of the relationship between individual interests and the occupational interests that define adolescents' future careers and lifestyles.

## INDIVIDUAL INTERESTS AND OCCUPATIONAL INTERESTS

Studies of individual interests and studies of the development of occupational or vocational interests are two research literatures that have grown in relative isolation from each other. This is surprising considering that the central construct of interest is common to both. Again, an important barrier to a better integration between these literatures has been the level of generality implicit in the way each literature has defined its central construct. On the one hand, the study of individual interests has generally taken place within the educational research literature with a focus on elementary and secondary students. Specific individual interests, defined in terms of some combination of knowledge, value, and affective components, have generally been considered in terms of domains represented by school subjects (see Renninger, 2000; Schiefele, 1998). For example, Haussler, Langeheine, Rost, and Sievers (1998) have made intensive studies of students' individual interest in physics, while Baumert, Schnabel, and Lehrke (1998) and Kreitler and Nussbaum (1998) have reported on individual interest in mathematics. On the other hand, the study of vocational or occupational interests has been more likely to focus attention on senior secondary students, tertiary students, and young adults entering the workforce. The central interest construct in these investigations has been defined in terms of a set of broad areas of experience corresponding to types of people characteristically found in different work environments. Holland's (1985) Realistic, Investigative, Artistic, Social, Enterprising, and Conventional (RIASEC) model of the fit between an individual's vocational interests and specific workplace environments has been widely used in these investigations.

The meaning of "interests" is critical here. It is our contention that by establishing the interconnections between what has been studied as adolescents' individual interests in the educational domain and adolescents' occupational interest in vocational research, researchers could extend their understanding of the development of competencies that are related to successful educational outcomes.

## INDIVIDUAL INTERESTS, BASIC INTERESTS, AND GENERIC INTERESTS

One problem in examining the interconnections between the interest terms is that the development of occupational interests from early childhood through adolescence into adulthood has not been well documented. Studies of occupational development are far more likely to take middle adolescence as their starting point. For example, Kroger's (2000a) recent volume on identity from a psychosocial perspective makes its first reference to vocational interests when describing the contents of identity in mid-adolescence. However, when researchers do make some reference to childhood and early adolescence, they generally refer to what has been described in this chapter as individual interests. Kelso (1986), for instance, concluded that

> the special heredity and experiences of the child lead to preferences for some activities, aversions to others. Later, these preferences emerge as well-defined interests. Interests, in turn, lead to the development of competencies, and the crystallization of associated values. All of these events are held to contribute to the creation of a person who is predisposed to exhibit a characteristic life style and personality traits. (pp. xviii–xix)

The developmental sequence as described by Kelso (1986) starts with "preferences for activities" and expands into a general self-structure in late adolescence and adulthood where what Holland (1985) refers to as RIASEC interests are the basic organizational units. This theme can be detected in a number of writings on occupational development and attests to the importance of the individual interests of childhood for the developed occupational interests of late adolescence and early adulthood.

There are a number of writers who have described in some detail the course of development contributing to vocational and occupational interests as measured in middle and late adolescence. Ginzberg (1972) proposed three stages of vocational development. The first stage was described as a childhood *fantasy* stage. In a child's imagination, the child becomes the hero, or cultural model. The 10-year-old who asserts that "When I grow up I want to be a pop star (a firefighter, a doctor, a farmer)" is at the fantasy stage. The second stage, corresponding to early and into middle adolescence, was identified as a *tentative* stage "where one's thoughts about a vocation begin to reflect one's own interests" (p. 172). This represents a movement from fantasy choices to choices reflecting that adolescents are incorporating some awareness of what they know about and what they value in their expressions of vocational intention. A 14-year-old boy may state that he wants to become a scientist "because he likes science classes where they do experiments and look through microscopes."

The final stage extends broadly from middle to late adolescence and was referred to by Ginzberg (1972) as a *realistic* stage. At this level the tentative choices are tested against opportunity, abilities, and interests. When asked about career intentions, the 16-year-olds are likely to include how well they do at school as well as what they enjoy and value. Ginzberg's description of vocational development is framed around two core personal attributes of adolescents, their abilities and interests. Labeling the stages as *fantasy, tentative,* and *realistic* puts centre stage developmental processes that involve increasing reliance on social comparison and feedback. In this way adolescents become more aware of their strengths and limitations with respect to abilities and interests. They become more aware of what are their personal competencies and whether they will be able to overcome any constraints or obstacles that might restrict realization of their specific work interests.

The extensive research into the nature of the self and allied theories of the development of self-concept, which have been developed since Ginzberg's (1972) description of this stage in the development of vocational interests, has drawn attention to a range of complex issues confronted by adolescents that are implicated at this *realistic* stage. For example, Markus and Nurius (1986) proposed that some of the contents of the self are a representation of what the person might become, both what they would like to become and what they might fear becoming. These self structures were referred to as "possible selves." Others such as Lens (see this volume; Husman & Lens, 1999) and Nuttin (e.g., Nuttin & Lens, 1984), link students' perceptions of themselves in time as an important dimension underpinning concrete intentions and plans. Future time perspective theorists propose that the setting of specific goals with their implicit sense of extension into the future are important motivational contents in the developing self. Hence, expressions of occupational interests by older adolescents are a complex construction of intentions that include components of liking, valuing, personal competencies, and also perceptions of opportunities and obstacles.

Consider the role of interest in this developmental model. At the *fantasy* stage, expression of future work is about wishes expressing desires to be part of something that is perceived to be good or heroic: the wish to be the policeman who catches criminals, the doctor who makes sick people better, or the firefighter who rescues people and puts out dangerous fires. The *tentative* stage is described in terms of interest rather than wishes or simple liking. By early and middle adolescence, the self-concept shows the marks of social comparison. The individual student has been and continues to be confronted by the abilities and competencies of friends and peers. Expressed future work intentions also bear this mark and represent a more complex approach tendency that includes some awareness of personal strengths and weaknesses. Expressing a desire to become a firefighter is

more likely to involve recognition of having some of the qualities required for being a firefighter, for example, physical strength and tenacity when confronted with danger, as well as the thrill of being a hero. The occupational interest expressed is more complex than fantasy in that it involves some knowledge of what is required by that occupation, some knowledge of one's own abilities and value of the activity. The term *interest*, as used by Ginzberg (1972), implicates knowledge and value components in much the same way as Renninger (2000) has used both knowledge and value components to define what is meant by a well-developed personal or individual interest.

Finally, at the *realistic* stage, opportunity adds a further dimension to occupational interests. Expressions of "what I want to be" are tempered by contextual constraints and are more often expressed as "what I think I could be."

There are other models of the development of vocational interest (e.g., Super, 1980) that venture back into childhood, but these make up only a small part of the vocational and career development literature. However, the point to be made here is that when early aspects of career development are considered, authors generally give prominence to interest concepts that are analogous to what is referred to by researchers in the educational area as individual interests.

From the perspective of the occupational interest literature, the centrality of the interest construct in occupational preference and choice has also been documented. Naylor (1993) highlighted this in his overview of the historical roots of contemporary vocational preference measurement. Two of the earliest leaders in this field, Strong (1943) and Kuder (1948), both used interest as the central building blocks of their work. For Strong, interests defined what members of a specific occupation were like. Interests were key to matching how individuals described themselves in relation to membership of an occupational group. When assessment tools were designed to measure these interests, they enabled the matching of persons and workplaces to be "comprehensive, objectively based, and to have a high degree of predictive validity" (Naylor, 1993, p. 1). The most influential figure in this field has been John Holland (1985, 1996), whose theory of interest themes expanded perspectives on the connections between interest and work preferences. As Naylor (1993) concluded,

> Holland's six-fold typology is consistent with what has gone before, but is much more comprehensive in its theoretical scope, extending from interests to personality characteristics and competencies, and from persons to the characteristics of workplaces. Interests, therefore, are not logically or empirically limited to work. Indeed work might be argued to be a special case, or a limited manifestation, of much broader characteristics. (p. 3)

In all these writings there are different emphases in the meaning attributed to the term interest. Naylor's (1993) review suggested that interest was in some sense a fundamental aspect of personal definition. Ginzberg, Ginsburg, Axelrad, and Herma (1966) earlier had drawn attention to a number of critical distinctions that were important for the meaning of the term interest. Ginzberg and colleagues suggested that interest should be distinguished from preference or liking because it implies more commitment, and commitment is generally manifested in participation.

> We have used the term interests to mean an awareness on the part of the individual that through directed effort and activity in one direction he can gain more satisfaction than in another. The essential component in this definition is the factor of investment—the individual gains the satisfaction only as a result of effort and output. A person may prefer bow ties to other ties; he may like chocolate ice-cream sodas more than other sodas; but he does not just "like" to collect stamps or read books. If he actually devotes a considerable part of his time and efforts to such an activity, he is probably interested in it. Without this criterion, any stated preference must have the same value as any other... Interests imply more differentiation and complexity than preferences. (pp. 244–245)

From the career and occupational interest literature, Osipow (1983) suggested that different meanings of the word interest need to be recognized. He detailed three specific meanings, and, although they are related to each other, the three are not identical. He defined the first form of interest as *tested interest*, which is measured by testing knowledge that reflects involvement in an activity. The second is *inventoried interest*, which is measured in the traditional interest inventories when people are asked about the types of things they like to do. Osipow referred to the third type of interest as *manifest interest*, which is inferred by observing what people choose to do when they are in a situation in which they have some free choice.

What Osipow (1983) has referred to as manifest interest and Ginzberg's (1972) emphasis on the investment factor of time and effort when defining interest have much in common with the substance of individual interest as investigated within educational contexts (see Hidi & Harackiewicz, 2000; Renninger, 2000). Unfortunately, the why and how of the development of interests has not been extensively researched.

The boundaries between the research looking at individual interests, often specified in terms of school subject domains, and investigation of vocational interests have been joined recently in studies investigating the relationships between vocational interest themes and senior students' choices of school subjects. This research is consistently showing that students' choices of subjects in senior secondary school occur along dimensions that are congruent with the interest themes of the occupational

groups elaborated by Holland (1985, 1996). Recently Elsworth, Harvey-Beavis, Ainley, and Fabris (1999) have reviewed a number of these studies from the Australian educational context and have modeled the factors associated with subject choice in senior secondary school using a large national sample. They reported a number of significant findings. There were strong and persistent associations between gender, socioeconomic status, and subject enrollments in senior secondary school. Nationally, school and system effects were weak. On the other hand, when the subjects that students took in their final years of secondary schooling were grouped into domains of specialization, each domain was positively associated with one, or at most two, of the RIASEC vocational interest scores. "Further there was a small number of very strong positive associations, suggesting that some subject areas represent a particular focal point for interest motivated choices" (p. 307). For example, participation in creative arts studies was strongly associated with ARTISTIC; computing, economics, and business studies with CONVENTIONAL; mathematics and the physical sciences with INVESTIGATIVE; and technology studies were associated with REALISTIC.

It has always been known that students choose their courses and subjects in line with career or occupational interests. However, the importance of this research lies in the demonstration that the relationship between occupational interests and subject choice remains when factors such as gender and socioeconomic status that clearly have strong influences on occupational interests (see Jodl, Michael, Malanchuk, Eccles, & Sameroff, 2001) have been controlled. These findings point to the fact that what have been referred to as vocational and occupational interests share common "thematic content" with educational choices and this common thematic content reflects core systems of personal organization of the self.

## A CLOSER LOOK AT THE INTEREST CONSTRUCT

Elsworth and colleagues (1999) and Naylor (1993) have used the various findings concerning the relationships between occupational interest and choice of specific school subjects to distinguish three levels of meaning for the interest construct. At the most specific level, they refer to *situational interest* to indicate a state-like response to a specific event or contingency. At the next level, they identify *domain-specific interest* as a relatively enduring predisposition of the person to interact with a specific class of objects or events. Choice of a specific school subject, for example mathematics or history, represents a domain-specific interest. A cluster of subjects such as mathematics, physics, and chemistry represents a domain-specific interest

in science. What is considered to be a domain varies, but domain-specific interests constitute an important part of the self-concept.

The third and critical level described in these studies is referred to as *generic interests*. Generic interests move the level of analysis to the broader personality level and denote "general predispositions of individuals to prefer engagement with a broad class of similar objects and/or activities" (Elsworth et al., 1999, p. 292). General or generic interests are presumed to involve considerable breadth and structure in the organization of an individual's predispositions and, in contrast to domain-specific interests, are viewed *independently* of the specific activities, content, and contexts from which they are inferred. In this sense, Elsworth and colleagues concluded that generic interest is analogous to a personality trait or general ability. This means that each student has a profile made up of his or her position with respect to the six modes of interacting with the environment: realistic, investigative, artistic, social, enterprising, and conventional. Holland's (1985) theory of fit between worker personality and work environment proposed that the interest profile that distinguishes effective workers within any specific occupation represents a particular organization of core components of the self. The successful scientist has a different profile to the successful mechanic or hospital orderly.

In addition, Elsworth and colleagues (1999) elaborated on what they refer to as an "implied causal model." They proposed that generic interests are a fundamental or core unit of personality organization and this has direct implications for questions concerning the development of both individual interests and occupational interests.

> The implied causal model is, thus, one from correlated contextual and "background characteristics" to a relatively stable psychological predisposition to a more specific response; from school and system, student gender and SES, to a generic interest and then to a domain-specific choice. (p. 300)

Hence, all of these distinctions between types of interest represent different foci on a dimension varying in the generality of the referents rather than mutually exclusive categories. Therefore, vocational interest themes give an insight into the broader structure of the personal organization whether defined in terms of the contents of identity or of self-concept. The insights from the individual interest literature and the vocational interest literatures considered together may provide some useful insights into the educational situation of particular groups of students. For example, much is written about students identified in various ways of being *at risk*, and many intervention programs have been designed to address the needs of these students. One source contributing to students' *at risk* status may be found in their patterns of individual interests and occupational interests. For example, Care,

Ainley and Dowsett (2002) found that a small group of 10th-grade girls identified by teachers as being *at risk* of dropping out of school had a flat profile of occupational interests. The students completed an Australian vocational interest inventory (AIM) (Care & Naylor, 1999) and, in comparison to other students, *at risk* girls were found to express little interest in any of the major six occupational interest areas. Further information is needed to establish whether the very flat interest profile was also typical for their out-of-school activities, or whether the problem really is one of mismatch between their interests and what is offered by the school curriculum. Exploring young students' sense of themselves and their learning from other perspectives, for example, their future time perspective, as developed by Lens (see this volume), may also provide further insight into how to motivate learning in these *at risk* female students. In contrast, the group of boys considered *at risk* were measured with very strong REALISTIC interests. For them the problem appears to be not so much absence of interests but that their interests were in an area not well represented within the learning areas offered in the main school curriculum.

Clearly, educators should have some understanding of the extent to which interest contributes to adolescents' developing sense of self. Both situational and individual interest perspectives impact on the responsiveness of students to the educational experiences offered as part of their school curriculum. Bringing to their schooling a well-developed set of interests that match the domains represented by school subjects, some students find schooling challenging and enjoyable. For many others this is not the case. Where there are no compatible, well-developed interests the task for teachers is much more demanding. However, the fact that students can have their interest triggered by events and activities that have personal meaning and value or that deal with issues of universal significance can be used to connect students with important learning (see Cordova & Lepper, 1996; Hidi & Berndorff, 1998; Lepper & Cordova, 1992; Lepper & Henderlong, 2000; Mitchell, 1993). Looking specifically at students' lack of interest in physics, a group of German researchers (Haussler et al., 1998) concluded that in order to develop individual interest, first, situational interest should be stimulated during physics lessons. They described three types of students and matched these with different emphases in the way physics could be presented in order to trigger interest. Type A students were interested in all areas of physics and were more likely than other types to be interested in physics as a scientific enterprise, to be interested in technical objects and technical vocations, and to be interested in handling or building technical objects. Type B students were more likely to be mainly interested in physics that they used as a vehicle to understand how physics can serve humankind and help explain natural phenomena. Finally, Type C students showed their strongest interest in physics when it was concerned

with the impact of physics on society. These patterns were used to guide the development of curriculum. By taking into account the specific context or situation of the physics problems, programs of study were designed to trigger interest in physics lessons for the different types of students. The researchers reported some success with this program, especially where it was used to enhance the interest and performance of girls in physics classes (Hoffmann & Haussler, 1998). Situational interest associated with physics lessons increased as did achievement outcomes.

We have argued that individual interests have an important place as contents of the developing self during adolescence. Educators are continually devising new ways to trigger situational interest (see Hidi & Harackiewicz, 2000; Mitchell, 1993). As Hannover and Kessels (2001) have proposed, when triggered in domains such as physics, languages, history, mathematics, or music, interest is more likely to persist if individuals attach the new experience to themselves. This involves reorganizing their self-concept to incorporate "I am a person who likes physics" or "I am a person who likes learning languages."

## NOTE

1. As subsequent segments of our chapter demonstrate, several other conceptualizations of interest can be found in the wider literature of the topic.

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